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Centre for the Built Environment

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Norwich Research Park Enterprise Centre - an Exemplar Low Carbon Building at the University of East Anglia

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Briefing Paper 01

Introduction

This briefing paper describes the aspirations and sustainable strategies in the development of the new Norwich Research Park Enterprise Centre (NRPEC) at the University of East Anglia (UEA). It aims to share the knowledge and challenges at the early stage of this project.

The Project

Fig 1. Ground Floor Plan of the NRPEC (Picture courtesy of Architype)

The Exemplar Low Carbon Building project was awarded £6.2m from the European Union through the European Regional Development Fund in addition to funding from UEA, the Biotechnology and Biological Sciences Research Council (BBSRC) and Building Research Establishment (BRE). The project is using a Single Point of Delivery (SPD) approach and is being delivered by main contractor Morgan Sindall and its team including architects Architype, structural engineers BDP and Churchman Landscape Architects. This new Enterprise Centre will be the new home for the Adapt Low Carbon Group with an area dedicated to showcasing monitoring and testing new sustainable products and bio-based materials from local companies.

The Enterprise Centre is arranged around a contemporary entrance courtyard, in the centre of the site, with two main accommodation wings to the north and south, perpendicular to University Drive. These house various hatcheries for startup Small and Medium Entreprises (SMEs), academic spaces, social and work areas, ancillary spaces and a dynamic testing suite. Linking these together is a pavilion housing the building's reception, social areas, exhibition and demonstration space and the Centre's offices. Within the courtyard and accessed from the pavilion will be a 300 seat lecture theatre, and within the exhibition garden to the south, there will be a testing pavilion for trialing new construction innovations.

Aspiration and innovation

The University's aim is for the building to be ultra low in embodied carbon as near to a carbon sink as possible and designed to meet 100 years design life. The project is also aimed to achieve BREEAM Outstanding and Passivhaus certification. The building will be specified using local sustainable materials with renewables energy incorporated and of which will include thin film PV and a solar thermal installation for hot water.

Low embodied energy local materials

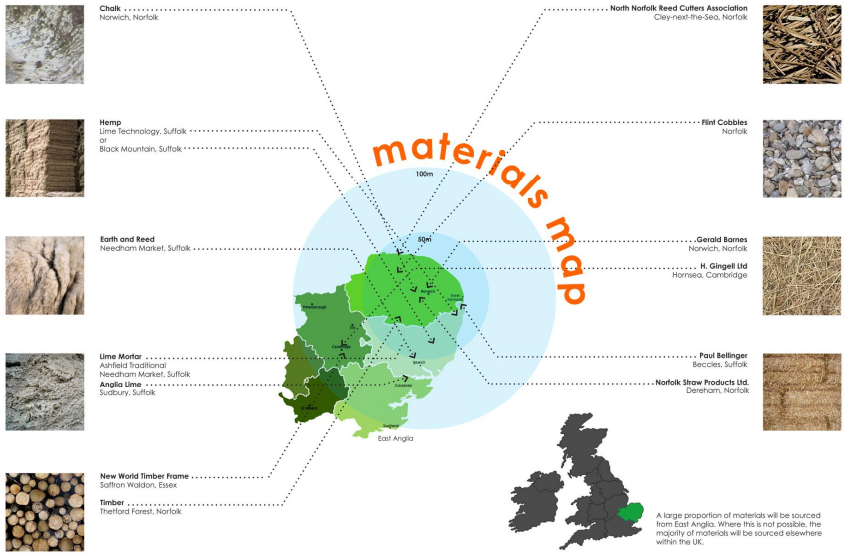

Figure 2 Local materials within 90-100 miles of the site

A materials map created shows that within 90 – 100 miles of the site; hemp, timber, chalk and thatch were most abundant. The project therefore focuses on these local materials.
Architype, the architect for the project, designed the building to be made from a hybrid glulam, Brettstapel and Larsen truss structure, using timber acquired from nearby Thetford forest; a rammed chalk lecture theatre; and East Anglian grown hemp insulation throughout. A rainscreen thatch cladding made from Norfolk grown Yeoman wheat and reed will also be incorporated with landscape features made from flint. The use of these local materials is to promote activity in the regional forestry industries and decrease carbon emissions through less transport.
Of all the BREEAM categories the sub-sections which account for energy and carbon dioxide emissions are the most heavily weighted and most difficult to achieve. By adopting the Passivhaus 'fabric first' approach, the level of renewable energy interventions needed to deliver higher levels of the BREEAM targets is greatly reduced.

Funding and business support for East of England SMEs

As a condition of this funding, the Centre for the Built Environment (a Centre that draws upon a cluster of expertise within and outside UEA and is responsible for delivery of ERDF outputs and, through Adapt Commercial, the provision of low carbon consultancy services) will provide free business support. This support will be delivered through a series of bespoke CPD accredited seminars, webinars and other support showcasing the design, build and post-occupancy of the building. As part of the ERDF funding, SMEs in the East of England are eligible for up to 12 hours support free of charge. Non SMEs will be charged £30 plus VAT per half day session. The seminars are CPD accredited and suitable for architects, contractors, planners, M & E consultants and other built environment professionals. The seminars will be delivered by a combination of professionals working on the Exemplar Low Carbon Building, other built environment specialists and CBE consultants and will have a maximum capacity of 15 people per session. Events include topics such as Passivhaus, BREEAM, Sustainable Urban Drainage System (SUDS), Building Information Modelling (BIM), Ventilation and many more. For our latest events, please visit our website: www.adaptcbe.co.uk/CBE/events.

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